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Pacing Guide

Unit Title	Digital Citizenship Timeframe	Timeframe (# days)	4 days
Unit Summary	**Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.**		
Standards	8.1.2.NI.1	**Content/Skills**	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.
	8.1.2.NI.2		Describe how the Internet enables individuals to connect with others Worldwide.
	8.1.2.NI.3		Create a password that secures access to a device. Explain why it is important to create unique passwords that are not shared with others.

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Unit Title	Digital Citizenship Timeframe	Timeframe (# days)	4 days
	8.1.2.NI.5		Explain why access to devices need to be secured.

Unit Title	Computing Systems & Networks	Timeframe (# days)	10 days
Unit Summary	Students interact with a wide variety of computing devices that collect, store, analyze and act upon information in ways that can affect human capabilities both positively and negatively. The physical components (hardware) and instructions (software) that make up a computing system communicate and process information in digital form.		
Standards	8.1.2.CS.1	Content/Skills	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.

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	8.1.2.CS.2		Explain the functions of common software and hardware components of computing systems
	8.1.2.CS.3		Describe basic hardware and software problems using accurate terminology.
	8.1.2.IC.1		Compare how individuals live and work before and after the implementation of new computing technology.
	8.2.2.ITH.3		Identify how technology impacts or improves life.
	8.2.2.ITH.4		Identify how various tools reduce work and improve daily tasks.

Unit Title	Google Apps & Research	Timeframe (# days)	14 days
Unit Summary	Students critically curate a variety of resources using digital tools to construct		

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	knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.		
Standards	8.1.2.DA.1	**Content/Skills**	Collect and present data, including climate change data, in various visual formats.
	8.1.2.DA.2		Store, copy, search, retrieve, modify, and delete data using a computing device
	8.1.2.DA.3		Identify and describe patterns in data visualizations.
	8.1.2.DA.4		Make predictions based on data using charts or graphs.
	8.2.2.EC.1		Identify and compare technology used in different schools, communities, regions, and parts of the world.

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Unit Title	Robotics/Coding	Timeframe (# days)	8 days
Unit Summary	**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**		

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Standards	8.1.2.AP.1	Content/Skills	Model daily processes by creating and following algorithms to complete tasks.
	8.1.2.AP.2		Model the way programs store and manipulate data by using numbers or other symbols to represent information.
	8.1.2.AP.3		Create programs with sequences and simple loops to accomplish tasks.
	8.1.2.AP.4		Break down a task into a sequence of steps.
	8.1.2.AP.5		Describe a program's sequence of events, goals, and expected outcomes.
	8.1.2.AP.6		Debug errors in an algorithm or program that includes sequences and simple loops.

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Unit Title	STEAM	Timeframe	8 days
Unit Summary	**Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. Students design for enjoyment to solve problems, extend human capabilities, satisfy needs and wants, and improve human condition. Engineering Design, a systematic approach to creating solutions to technological problems and finding ways to meet people's needs and desires, allows for the effective and efficient development of products and systems.**		
Standards	8.2.2.ED.1 8.2.2.ED.2 8.2.2.ED.3	**Content/Skills**	Communicate the function of a product or device. Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. Select and use appropriate tools and materials to build a product using the design process.

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	8.2.2.ED.4		Identify constraints and their role in the engineering design process
	8.2.2.ITH.1		Identify products that are designed to meet human wants or needs.
	8.2.2.ITH.2		Explain the purpose of a product and its value.
	8.2.2.ITH.5		Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.
	8.2.2.NT.1		Model and explain how a product works after taking it apart, identifying the relationship of each part, and putting it back together.
	8.2.2.NT.2		Brainstorm how to build a product, improve a designed product, fix a product that has

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			stopped working, or solve a simple problem.
	8.2.2.ETW.1		Classify products as resulting from nature or produced as a result of technology.
	8.2.2.ETW.2		Identify the natural resources needed to create a product.
	8.2.2.ETW.3		Describe or model the system used for recycling technology.
	8.2.2.ETW.4		Explain how the disposal of or reusing a product affects the local and global environment.

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Curriculum

Key for Indicating Compliance with Laws/Statutes
These symbols used throughout the curriculum indicate compliance with the following mandates: @ = Amistad * = Holocaust ^ = LGBTQ+/Disabilities History # = Career Education $ = Diversity, Equity and Inclusion

Unit Title: **Digital Citizenship**		Timeframe: 4 days
Unit Summary	**Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.**	
Learning Targets		
Essential Questions	**How can I make the world a better place when I'm online?** **How can I make sure that I am not taking and using someone else's idea?**	

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	How can I keep my device safe from viruses and information safe from hackers? **How can I manage my digital reputation?**
What Students Will Be Able to Do By the End of the Unit	-engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices. - demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property. -manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online. - cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
Evidence of Learning	
Formative Assessments (assessments for learning)	Teacher observations Skills mastered checkoff sheet Rubrics Exit Tickets
Summative (Assessments of learning)	Projects Classroom discussions
Learning Activities	Netsmartz "Into the Cloud" series and activities CommonSenseMedia lessons and activities

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	Read Aloud book and discussion: Little Monsters Guide to Learning How to Treat Computers, iPads and Phones; TEK The Modern Cafe Boy Bad Kitty Does Not Like Video Games Cami and Wyatt Have Too Much Screen Time If You Give a Mouse an iPhone
Materials/Equipment/ Resources	Internet, Computer, CommonSense Media, NetSmartzKids

New Jersey Student Learning Standards	
Standard	**Performance Expectation**
8.1.2.NI.1	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.
8..1.2.NI.2	Describe how the Internet enables individuals to connect with others worldwide.
8..1.2.NI.3	Create a password that secures access to a device. Explain why it is important to create unique passwords that are not shared with others.
8..1.2.NI.4	Explain why access to devices needs to be secured.

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Modifications and Accommodations

Basic Skills, Special Education, ELL, 504, Students at Risk for Failure
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of communication practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies.
- Additional processing time when responding to questions.
- Practice the academic language prior to answering in front of the whole group
- Incorporate effective strategies that build academic language (Turn and Talk, Think/Pair/Share and Small group activities)
- Consistently use dictionaries (picture, bilingual, English, personal) across all levels of proficiency.

In all instances, activate and/or build background knowledge, key vocabulary and critical language structures connected to the actual tasks, activities and texts that students will need to be successful and emphasize these points throughout the lessons.

Talented and GiftedStudents

- Provide opportunities for students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Expose students to advanced vocabulary which is beyond grade-level.
- Allow students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Utilize advanced, above grade-level texts in reading assignments.

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- Have students form and participate in a Socratic Seminar or Literature Circles in groups of 6–10 students to share ideas.
- Intentionally move the cognitive process higher in response to the characteristics of the gifted/advanced learners.
- Add depth and complexity to content and tasks demands.
- Create situations in which students must generate and defend ideas.
- Develop opportunities for students to access and apply information through the generation of ideas.
- To nurture creativity, instruct students on the difference between typical responses and responses that are novel and original.
- Provide regular opportunities for students to respond creatively.
- Allow students to search the Internet or other sources to write a summary report about a topic.

END OF UNIT

Unit Title: **Computing Systems & Networks**	**Timeframe: 10 days**
Unit Summary	**Students interact with a wide variety of computing devices that collect, store, analyze and act upon information in ways that can affect human capabilities both positively and negatively. The physical components (hardware) and instructions (software) that make up a computing system communicate and process information in digital form.**
Learning Targets	
Essential Questions	**What learning environment is best for me and how can I create it?**

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What Students Will Be Able to Do By the End of the Unit	- build networks and customize their learning environments in ways that support the learning process. -use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. -understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.
Evidence of Learning	
Formative Assessments (assessments for learning)	Teacher observations Skills mastered checkoff sheet Rubrics Exit Tickets
Summative (Assessments of learning)	Projects Classroom discussions
Learning Activities	www.typetastic.com Mouse/Trackpad practice Digital Keyboard Puzzles Build Your Own Computer paper activity Computer Trouble book and discussion
Materials/Equipment/ Resources	Internet, Computer, CommonSense Media, NetSmartzKids
New Jersey Student Learning Standards	

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Standard	Performance Expectation
8.1.2.CS.2	Explain the functions of common software and hardware components of computing systems.
8.1.2.CS.3	Describe basic hardware and software problems using accurate terminology.
8.1.2.IC.1	Compare how individuals live and work before and after the implementation of new computing technology.
8.2.2.ITH.3	Identify how technology impacts or improves life.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.

Modifications and Accommodations

Basic Skills, Special Education, ELL, 504, Students at Risk for Failure
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of communication practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies.
- Additional processing time when responding to questions.
- Practice the academic language prior to answering in front of the whole group

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- Incorporate effective strategies that build academic language (Turn and Talk, Think/Pair/Share and Small group activities)
- Consistently use dictionaries (picture, bilingual, English, personal) across all levels of proficiency.

In all instances, activate and/or build background knowledge, key vocabulary and critical language structures connected to the actual tasks, activities and texts that students will need to be successful and emphasize these points throughout the lessons.

Talented and Gifted Students

- Provide opportunities for students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Expose students to advanced vocabulary which is beyond grade-level.
- Allow students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Utilize advanced, above grade-level texts in reading assignments.
- Have students form and participate in a Socratic Seminar or Literature Circles in groups of 6–10 students to share ideas.
- Intentionally move the cognitive process higher in response to the characteristics of the gifted/advanced learners.
- Add depth and complexity to content and tasks demands.
- Create situations in which students must generate and defend ideas.
- Develop opportunities for students to access and apply information through the generation of ideas.
- To nurture creativity, instruct students on the difference between typical responses and responses that are novel and original.
- Provide regular opportunities for students to respond creatively.
- Allow students to search the Internet or other sources to write a summary report about a topic.

END OF UNIT

Unit Title: **Google Apps & Research**	**Timeframe: 14 days**

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Unit Summary	**Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
Learning Targets	
Essential Questions	**How can I find the information I need quickly?** **How do I know the information I found is good and reliable?** **How do I organize the information I find when I search online?** **What is the best digital tool to use to help me solve a problem?** **How does a computer function to solve problems?**
What Students Will Be Able to Do By the End of the Unit	-plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. -evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources -curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions -select and use digital tools to plan and manage a design process that considers design constraints and calculated risks
Evidence of Learning	
Formative Assessments (assessments for learning)	Teacher observations Skills mastered checkoff sheet Rubrics Exit Tickets

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Summative (Assessments of learning)	Projects Classroom discussions
Learning Activities	Google Slides - drag and drop activities, formatting practice, inserting images, copy and paste, "Favorite Animal" research and presentation Google Docs - formatting practice, inserting images, typing Google Sheets - organizing data, creating a chart Google Drawings - desktop publishing activities using shapes and word art Google Classroom navigation
Materials/Equipment/ Resources	Internet, Computer, Google Applications

New Jersey Student Learning Standards	
Standard	**Performance Expectation**
8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
8.1.2.DA.2	Store, copy, search, retrieve, modify, and delete data using a computing device.
8.1.2.DA.3	Identify and describe patterns in data visualizations.
8.1.2.DA.4	Make predictions based on data using charts or graphs.
8.2.2.EC.1	Identify and compare technology used in different schools, communities, regions, and parts of the world.

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Modifications and Accommodations

Basic Skills, Special Education, ELL, 504, Students at Risk for Failure
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of communication practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies.
- Additional processing time when responding to questions.
- Practice the academic language prior to answering in front of the whole group
- Incorporate effective strategies that build academic language (Turn and Talk, Think/Pair/Share and Small group activities)
- Consistently use dictionaries (picture, bilingual, English, personal) across all levels of proficiency.

In all instances, activate and/or build background knowledge, key vocabulary and critical language structures connected to the actual tasks, activities and texts that students will need to be successful and emphasize these points throughout the lessons.

Talented and Gifted Students

- Provide opportunities for students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Expose students to advanced vocabulary which is beyond grade-level.
- Allow students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Utilize advanced, above grade-level texts in reading assignments.

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- Have students form and participate in a Socratic Seminar or Literature Circles in groups of 6–10 students to share ideas.
- Intentionally move the cognitive process higher in response to the characteristics of the gifted/advanced learners.
- Add depth and complexity to content and tasks demands.
- Create situations in which students must generate and defend ideas.
- Develop opportunities for students to access and apply information through the generation of ideas.
- To nurture creativity, instruct students on the difference between typical responses and responses that are novel and original.
- Provide regular opportunities for students to respond creatively.
- Allow students to search the Internet or other sources to write a summary report about a topic.

END OF UNIT

Unit Title: **Robotics/Coding**	**Timeframe: 8 days**
Unit Summary	**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
Learning Targets	
Essential Questions	**How does a computer function to solve problems?** **How can I use technology to save myself time when I am learning something new?**

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What Students Will Be Able to Do By the End of the Unit	-formulate problem definitions suited for technology assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions. - understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions
Evidence of Learning	
Formative Assessments (assessments for learning)	Teacher observations Skills mastered checkoff sheet Rubrics Exit Tickets
Summative (Assessments of learning)	Projects Classroom Discussion
Learning Activities	Dash robots Code.org activities Scratch coding games
Materials/Equipment/ Resources	Tablets, Computers, code.org, Scratch, CS First, robots, apps to code robots
New Jersey Student Learning Standards	

Standard	Performance Expectation
8.1.2.AP.1	Model daily processes by creating and following algorithms to complete tasks.

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8.1.2.AP.2	Model the way programs store and manipulate data by using numbers or other symbols to represent information.
8.1.2.AP.3	Create programs with sequences and simple loops to accomplish tasks.
8.1.2.AP.4	Break down a task into a sequence of steps.
8.1.2.AP.5	Describe a program's sequence of events, goals, and expected outcomes.
8.1.2.AP.6	Debug errors in an algorithm or program that includes sequences and simple loops.

Modifications and Accommodations

Basic Skills, Special Education, ELL, 504, Students at Risk for Failure
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of communication practices to provide students with multiple entry points and multiple ways to demonstrate their understanding.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies.

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- Additional processing time when responding to questions.
- Practice the academic language prior to answering in front of the whole group
- Incorporate effective strategies that build academic language (Turn and Talk, Think/Pair/Share and Small group activities)
- Consistently use dictionaries (picture, bilingual, English, personal) across all levels of proficiency.

In all instances, activate and/or build background knowledge, key vocabulary and critical language structures connected to the actual tasks, activities and texts that students will need to be successful and emphasize these points throughout the lessons.

Talented and Gifted Students

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- Expose students to advanced vocabulary which is beyond grade-level.
- Allow students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Utilize advanced, above grade-level texts in reading assignments.
- Have students form and participate in a Socratic Seminar or Literature Circles in groups of 6–10 students to share ideas.
- Intentionally move the cognitive process higher in response to the characteristics of the gifted/advanced learners.
- Add depth and complexity to content and tasks demands.
- Create situations in which students must generate and defend ideas.
- Develop opportunities for students to access and apply information through the generation of ideas.
- To nurture creativity, instruct students on the difference between typical responses and responses that are novel and original.
- Provide regular opportunities for students to respond creatively.
- Allow students to search the Internet or other sources to write a summary report about a topic.

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Unit Title: **STEAM**	Timeframe: 8 days
Unit Summary	**Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
Learning Targets	
Essential Questions	**How do I solve problems?** **What steps can I take to solve a complex problem that seems to have many solutions?** **What do I do when I am having trouble finding the solution to a problem?**
What Students Will Be Able to Do By the End of the Unit	- know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. -develop, test and refine prototypes as part of a cyclical design process -exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems
Evidence of Learning	
Formative Assessments (assessments for learning)	Teacher observations Skills mastered checkoff sheet Rubrics Exit Tickets
Summative (Assessments of learning)	Projects Classroom discussions

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Learning Activities	Use building supplies to create "tallest", "longest", "strongest" structures.
Materials/Equipment/ Resources	Building tools, computers

New Jersey Student Learning Standards	
Standard	**Performance Expectation**
8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
8.2.2.ED.3	Select and use appropriate tools and materials to build a product using the design process.
8.2.2.ED.4	Identify constraints and their role in the engineering design process.
8.2.2.ITH.1	Identify products that are designed to meet human wants or needs.
8.2.2.ITH.2	Explain the purpose of a product and its value.
8.2.2.ITH.5	Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.
8.2.2.NT.1	Model and explain how a product works after taking it apart, identifying the relationship of each part, and putting it back together.

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8.2.2.NT.2	Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.
8.2.2.ETW.1	Classify products as resulting from nature or produced as a result of technology.
8.2.2.ETW.2	Identify the natural resources needed to create a product.
8.2.2.ETW.3	Describe or model the system used for recycling technology.
8.2.2.ETW.4	Explain how the disposal of or reusing a product affects the local and global environment.

Modifications and Accommodations

Basic Skills, Special Education, ELL, 504, Students at Risk for Failure
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of communication practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies.
- Additional processing time when responding to questions.
- Practice the academic language prior to answering in front of the whole group
- Incorporate effective strategies that build academic language (Turn and Talk, Think/Pair/Share and Small group activities)
- Consistently use dictionaries (picture, bilingual, English, personal) across all levels of proficiency.

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In all instances, activate and/or build background knowledge, key vocabulary and critical language structures connected to the actual tasks, activities and texts that students will need to be successful and emphasize these points throughout the lessons.

Talented and Gifted Students

- Provide opportunities for students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Expose students to advanced vocabulary which is beyond grade-level.
- Allow students to demonstrate skills in self-directed learning, thinking, research, and communication.
- Utilize advanced, above grade-level texts in reading assignments.
- Have students form and participate in a Socratic Seminar or Literature Circles in groups of 6–10 students to share ideas.
- Intentionally move the cognitive process higher in response to the characteristics of the gifted/advanced learners.
- Add depth and complexity to content and tasks demands.
- Create situations in which students must generate and defend ideas.
- Develop opportunities for students to access and apply information through the generation of ideas.
- To nurture creativity, instruct students on the difference between typical responses and responses that are novel and original.
- Provide regular opportunities for students to respond creatively.
- Allow students to search the Internet or other sources to write a summary report about a topic.

END OF UNIT